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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,922	07/28/2003	Larry D. Benjamin	070386-0303769	3610
909	7590	05/12/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			GONZALEZ, MADELINE	
			ART UNIT	PAPER NUMBER
			2859	
DATE MAILED: 05/12/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/627,922

Applicant(s)

BENJAMIN, LARRY D.

Examiner

Madeline Gonzalez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/15/2003.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 2 and 26 are objected to because of the following informalities:
  - a) Claim 2: The claim recites the limitation “the heat conducting material” in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.
  - b) Claim 26: The claim recites the limitation “the metallic material” in line 1. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6, 8-12, 17, 18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Nimberger et al. (U.S. 6,352,361) [hereinafter Nimberger].

Nimberger discloses a temperature sensing device, as shown in Fig. 6, having:

- an elongated tubular shaft 62D having a hollow interior;

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- an insulating structure 70D mounted on said elongated shaft 62D;
- a heat conducting structure 36D coupled to said insulating structure 70D;
- a thermocouple 28D coupled to said heat conducting structure 36D and extending into the hollow interior of said elongated shaft 62D;
- the device inherently having a control device electrically communicated to said thermocouple 28D and operable to determine a temperature from said thermocouple 28D;
- wherein when said heat conducting structure 36D is disposed within a mass of packed product said heat conducting structure 36D transmits thermal energy from the mass to said thermocouple 28D and said insulating structure 70D thermally isolates said heat conducting structure 36D from said tubular shaft 62D;
- wherein the heat conducting structure 36D is constructed of metallic material;
- wherein said shaft 62D is constructed of a metallic material;
- support structure 96F, as shown in Fig. 9, mounted within the hollow interior of said tubular shaft 62D that supports a portion of said thermocouple 28D, 93F within said interior;
- wherein said tubular shaft 62D has a circular transverse cross-section;
- wherein said insulating structure 70D is mounted on an end of said tubular shaft 62D;
- wherein said insulating structure 70D is pervious to radiant heat energy;
- wherein said insulating structure 70D is constructed of a plastic material;
- wherein said plastic material is thermally stable;
- wherein said heat conducting structure 36D acts as a thermal choke;

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- wherein said thermocouple 28D is coupled to said heat conducting structure 36D substantially in a region of maximum heating of said thermal choke; and
- wherein said control device can be a programmable logic control device.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361).

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of the specific material of the heat conducting structure, the specific material of the shaft, and the specific type of plastic of the insulating structure.

With respect to the specific material of the heat conducting structure, the specific material of the shaft, and the specific type of plastic of the insulating structure: Nimberger discloses a device having a heat conducting structure made of a metallic material, a shaft made of a metallic material, and an insulating structure made of a plastic material. The particular type of material

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used to make the heat conducting structure, the shaft, and the insulating structure, i.e., brass, platinum, gold, stainless steel, mild steel, polycarbonate and Lexan®, are only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have find obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a brass, platinum, gold, stainless steel, and mild steel material to make the heat conducting structure and the shaft disclosed by Nimberger since these material are well-known metallic materials. Furthermore, it would have been obvious to use polycarbonate or Lexan® as the plastic material to make the insulating structure disclosed by Nimberger since these materials are well-known types of plastics.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Benzinger (U.S. 4,191,197).

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of the specific type of support structure.

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With respect to the specific type of support structure: Benzinger discloses a thermometer, as shown in Fig. 1, having a cotton plug 11 supporting a probe tube 14. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the support structure 96F of the device disclosed by Nimberger with a cotton material as taught by Benzinger in order to support the thermocouple and absorb humidity surrounding the thermocouple.

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Schafer et al. (U.S. 5,139,345) [hereinafter Schafer].

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of the specific shape of the tip of the heat conducting structure.

With respect to the specific shape of the tip of the heat conducting structure: Schafer discloses a temperature sensor, as shown in Fig. 1, having a shaft 1 including a heat conducting structure 3 forming a pointed/conical tip of a free end. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to change the shape of the tip of the heat conducting structure disclosed by Nimberger to a pointed/conical tip as taught by Schafer in order to easily insert the device in the desired place.

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8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Wu et al. (U.S. 6,712,996) [hereinafter Wu].

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of a type T thermocouple.

With respect to the type T thermocouple: Wu discloses a temperature indicator and teaches that type at thermocouples are commonly used to measured temperatures below 0 degree Celsius and typically have a range of -200 degrees Celsius to about 350 degrees Celsius. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the thermocouple used by Nimberger with a type T thermocouple as taught by Wu in order measure temperature within a range of -200 degrees Celsius to about 350 degrees Celsius.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Mauze et al. (U.S. 6,202,480) [hereinafter Mauze].

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of the thermocouple being micro fine.



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With respect to the thermocouple being micro fine: Mauze teaches the use of micro-thermocouple sensors for determining temperature and relative humidity in airstreams. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the thermocouple disclosed by Nimberger with a micro fine thermocouple in order to determine temperature and relative humidity.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Swearingen (U.S. 4,217,463).

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of the thermocouple being silver soldered to the heat conducting structure.

With respect to the thermocouple being silver soldered to the heat conducting structure: Swearingen discloses a thermocouple assembly, as shown in Fig. 1, having thermocouples silver soldered into channels 54 at tip 58 allowing the thermocouples to compensate for any differences in the extent of thermal expansion between a fitting 16 and the thermocouples. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to silver solder the thermocouple disclosed by Nimberger as taught by Swearingen in order to allow the thermocouple to compensate for any differences in the extent of thermal expansion between the heat conducting structure and the thermocouple.

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11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Kaufman (U.S. 4,595,300).

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of a lifting mechanism.

With respect to the lifting mechanism: Kaufman discloses a thermocouple drive assembly, as shown in Fig. 1, having a lifting mechanism that moves a heat conducting structure between a raised position and a lowered position. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to add a lifting mechanism as taught by Kaufman to the device disclosed by Nimberger in order to easily and controllably raise and lower the device.

12. Claims 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimberger (U.S. 6,352,361) in view of Dotan (U.S. 6,250,802).

Nimberger discloses all the subject matter claimed above in paragraph 3 with the exception of a temperature control assembly, the specific material of the heat conducting structure, the specific time the heat conducting structure contacts the material to be measured, and the method steps.

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With respect to the temperature control assembly: Dotan discloses a thermometer having a temperature control device 33 disposed adjacent a heat conducting structure to change a temperature of the heat conducting structure. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to add a temperature control device as taught by Dotan to the device disclosed by Nimberger in order to change the temperature of the probe to approximate the temperature of the body to be measured and obtain a more accurate measurement.

With respect to the specific material of the heat conducting structure: Nimberger as modified by Dotan disclosed a device having a heat conducting structure made of a metallic material. The particular type of materials used to make the heat conducting structure, i.e., brass, platinum, and gold, are only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have found obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use brass, platinum, and gold, to make the heat conducting structure disclosed by Nimberger since these materials are well known metallic materials.

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With respect to the specific time the heat conducting structure contacts the material to be measured: Nimberger as modified by Dotan disclosed a device having a heat conducting structure contacting a material to be measured. The specific time claimed by applicant, i.e., a time of 20 to 90 second and a time of less than two minutes as the time the heat conducting structure contacts the material to be measure, will depend on stabilizing time of the thermocouple. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a thermocouple with a stabilization time of 20 to 90 seconds or less than two minutes in order to obtain a fast measurement.

With respect to the method steps: The method steps will be met during the normal operation of the device stated above.

### *Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nimberger et al. ('670), Gill et al. ('457) and Zaldivar et al. ('834) disclose temperature sensing devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Madeline Gonzalez whose telephone number is (571) 272-2243. The examiner can normally be reached on Monday-Friday (8:00-5:30), alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG



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